Newsletter

April 1991

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CUGI Newsletter

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Editorial

Well, another three months have rolled by, World War III is over (watch out for news of the home computer version, coming soon ...) and those generous people in the E.S.B. have returned us to 24 hour power once more. A few tornados in the US and Bangladesh, and another earthquake in Armenia. All in all, it's been fairly quiet.

I came across an interesting bit of news recently. In the US, there is a service called Prodigy, aimed primarily at IBM and Mac novice modem users. It offers facilities similar to the soon-to-be-launched Minitel, combined with automated software (along the lines of that used by Compunet). On Usenet, more seasoned users have long been critical of the service, because of its charging policy, censored email (a computer program scans all email automatically and deletes any which contains comments less than flattering about Prodigy itself), and various other shortcomings.

One of the 'features' of Prodigy is that updated software can be downloaded directly onto your hard disk as soon as it is available. This happens automatically, without the user needing to do anything. So far, so good. However, a US journalist discovered that the Prodigy software can also upload files automatically — without the user's knowledge. Specifically, when the software is first installed, it creates a file (STAGE.DAT) which contains miscellaneous information it finds on the user's hard disk. This file is then transferred to the main Prodigy computer at a later stage where the powers that be can examine it.

Once word of this got out, many users checked STAGE.DAT on their own system, and were shocked at what they found. One programmer found parts of the source code for one of his commercial programs. A lawyer found copies of private letters to his clients. And so on.

Prodigy are, not surprisingly, reluctant to comment on this. There has been a suggestion that the information was intended for marketing purposes. That's as may be. In the meantime, there are a large number of lawsuits pending against Prodigy (which is owned by IBM and Sears). It looks like being an interesting case.

By the way, lest any local modem users are worried about something similar happening to them, rest assured that as long as you are using a standard comms package like *JR-Comm*, it is *impossible* for something like this to happen.

Submissions for the next newsletter by June 15 please. Enjoy this issue.

E.C.

The Amiga 1500 – Tales of Woe

by John Walsh

December 24, 1990. While most Irish people are busy preparing for Christmas, one man is struggling with two large boxes and their contents. Although he does not realise it, he is about to set in motion a series of events which will have repercussions for months to come. They will cause immeasurable suffering for many people, some of whom will end up basket-cases. This man is Geoffrey Reeves.

Last Christmas eve, Geoff received his Amiga 1500 fresh from Commodore. Although he was delighted to receive the beast in time for Christmas, he noticed that a 2091 hard drive interface which he had ordered at the same time as the A1500 had not arrived. This in itself was not very worrying, but Tom Kinsella had received one. Tom had ordered his 1500 at the same time as Geoff, so there was no obvious reason for one to arrive and one not to. Commodore had made no reference to the absence in the documentation.

Declan McArdle was also expecting his brand, spanking new A1500. He didn't have it for Christmas. He didn't have it for the New Year. When Commodore were contacted about the missing computer and two missing hard-cards, they checked into the absence which was news to them. They didn't have any real excuse but would look into the matter.

While Commodore were checking into the matter, various other CUGI members were enviously admiring the lovely-looking A1500, and striving manfully to sell off their A500's and accompanying widgets in an effort to afford A1500's of their own. This machine had caught the imagination of a lot of Amiga owners.

During January, Geoff was told that Commodore had no real reason why they hadn't sent him a 2091 card, but that this was the same reason that they were still not sending one to him. Declan, meanwhile, had discovered that his computer had fallen off the back of a lorry in Belfast (Belfast!) and that he would have to wait while a new one was made for him. However, by the end of January our two heroes could see light at the end of the tunnel. (Exit stage left.)

During January, Rocco and I decided to squander our futures and upgrade to the A1500 too. On January 15, we wrote cheques and donated them to CUGI. Unfortunately, CUGI was in the process of transferring its bank account between branches. As we now know, banks do not transfer money efficiently. Only some of the money transferred successfully — just enough to send a draft for one computer. This was not a total disaster however, and within a fortnight both computers had been ordered.

By mid February, Rocco had received his order acknowledgement and by early March was the proud owner of an Amiga 1500. Oh, happy day! His joy knew no bounds. Mine did. A few days later however, I received my order acknowledgement. This was more like it. Within a couple of weeks I would be a 1500-club member.

I could hardly wait. And then I waited. And waited. And waited. And waited. And rang Commodore. Which isn't very different to waiting. But I did ring. I asked for Diane, who deals with this class of thing. She has a lot of experience. By now she also has a lot of experience with phone calls from Ireland.

I gave her my order number. She checked the records. It had been sent. To her dispatch department anyway. I enquired if they had sent it, as it had not arrived here. She would have to check. I gave her my wife's phone number, as we don't have a phone at home and I work shifts. The following day she still had not phoned my wife, so I rang her again. She had still not managed to raise the dispatch department.

A week later she had found intelligent life in dispatch, and they were trying to trace the courier. They must have done, because a few days later I received a letter from Williams Transport, telling me that they had had a computer in their warehouse for the previous four weeks addressed to me, but as there was no phone number they could not contact me (despite evidence to the contrary, which I was reading).

I rang Williams and offered to drive there, give them the cash to pay for VAT, and collect the A1500 myself. They said "No." It had not yet been cleared through Customs. Even though it had been in the country for a month. Why not? They had to have the money for VAT before they let Customs at it, in case I decided against paying the VAT. So, could I deliver the cheque over the weekend? They said "No." They couldn't accept personal deliveries. I would have to post it. So I did.

That was on Friday. On Monday, I rang to arrange delivery. They said "No." The cheque had not arrived. But they did have a good idea. If I was to drive over to them and write them a cheque then we might be getting somewhere. I rolled a saving throw against disbelief, and agreed. Where are they? Blake's Cross. So am I.

I drove there and met with my man. So, how much is the VAT? Is that at

21%? He said "No." But 21% came in on March 1 and this was March 25, right? He said "No." The package had entered the country before the 1st. I had to pay at 23%. Now could I have the delivery? He said "No." Customs had still to look at it. They wouldn't do that until Tuesday. I could have it on Wednesday. What could I say? I didn't say "No."

So finally, two months after making my decision, I had my A1500. And was I happy. Was I what? (He said "No.") But once I had a hard drive I would be. Not just me. Also Rocco and Tom. We were all suffering from post-A590 blues. Once you get used to a hard drive, you can't live without one.

As Easter weekend was approaching, we had to get the order in fast. How to get the money to England as quickly as possible? At the speed of light? But of course! Electronic transfer of funds. So, down to the bank and transfer the shillings.

Irish banks do not electronically transfer funds, however. They physically shift the cash. From branch to head office takes a day. To convert into Sterling takes a day. To move to the boat takes a day. To take from the boat to the London Office takes a day. To transfer to the supplier's bank takes a day. Perhaps it was electronically transferred from there. And it didn't move during the Easter break.

But now it was there. And the drives were ready to be dispatched. And duly arrived. At Rocco's. And Rocco checked the identity codes. And they were the wrong drives. They were AT drives for the PC. Because, of course, everybody uses the PC. But they would have SCSI drives ready for the courier to take in exchange if he brought them back.

They were sent back. The courier asked them for the replacement package. They said "No." They didn't know anything about a replacement package. The courier returned, empty handed. Contact the man. Sorry. Didn't have it ready in time. But it is now. Send the courier again. He again calls to Rocco with the package. Rocco opens it. There was 1 (one) drive in the box. Contact the man. Sorry. Only had one drive in stock. But there should be a delivery soon. And then there will be no problem.

Don't you believe it?

Disclaimer: This is not a statement of fact. It is the author's impression of events over the last four months.

Data structures in C

by Kevin McDonnell

This article is the first in a series which will concentrate on explaining simple and complex data types to the readers of this newsletter. The series will start with arrays and cover topics such as linked lists, skip lists, binary trees and B trees with some other bits and pieces in between. The language used in this series will be C exclusively and all code will be available in the club library.

Although most of the code presented will be system independent, any system specifics will relate to IBM compatible machines (anything of this nature will be pointed out and hopefully equivalents for other systems will be given). All code given has been tested and runs on a Commodore PC, using *Turbo C++* and *Turbo C v2.0.*

Arrays

An array is a data structure that is made up of a fixed number of items in **sequence** with all items being of the **same type.**

This definition gives us an idea of what an array is, but what is it in real life? An array looks something like this:

```
int vals[10];
```

What this does is give us 10 int variables, all referenced by the name *vals*. These variables are *vals*[0], *vals*[1] and so on up to *vals*[9]. Note that C arrays start with element zero, so an array of size N has elements 0 ... N–1.

This means that all of the integers are stored consecutively in memory (i.e. *vals*[1+1] is the same as *vals*[2] and is stored in memory between *vals*[1] and *vals*[3]. That's all very well, says you, but what are arrays used for? Have a look at Example 1 on the opposite page.

Although not very useful, this program shows how an array can be used. If we wish to store a known number of data items, we can store them in an array. We can then do simple operations on the data, e.g. total the value of all the elements, sort the data, search the data. These operations can be done very simply in a few lines of code.

Another use of arrays in C is for strings. Most other languages have pre-defined string types that can be used immediately, but in C we must define the strings ourself. An example of a string definition is:

```
/***************************************
 *                                     *
 * Ex. 1                               *
 *                                     *
 * Program to count the occurance of   *
 * each digit entered by the user.     *
 *                                     *
 ***************************************/

#include <stdio.h>

void main()
{
    int num_digit[10];
    int c, i;
    int digit;

    /* Initialise array to be all zeros */
    for (i = 0; i < 10; i++)
        num_digit[i] = 0;

    /* Read in characters until user types 'q' */
    while ( (c = getchar()) != 'q')
        if (c >= '0' && c <= '9') {
            /* Increment count for the digit typed by user */
            digit = c - '0';
            num_digit[digit]++;
        }
    /* Print how many times each digit was encountered */
    for (i = 0; i < 10; i++)
        printf("Digit %d typed %d times.\n", i, num_digit[i]);
}
```

Example 1: Counting digits entered by a user

```
char str[50];
```

This reserves 50 bytes for us to use as a string. We can use this as follows:

```
strcpy(str, "CUGI");
```

This line of code copies the string "CUGI" into *str* and adds a terminating zero. In C, all strings are terminated with the null character '\0', which is ascii zero.

Note that in the above, we only give the name of the string, rather than *str*[0] for example. In C, the array name by itself is used to refer to the array as a whole, and individual elements refer to single characters within the array.

So far, we've only looked at arrays with one dimension, that is a sequential list of elements. However, we can quite easily use arrays with more than one dimension. For example, a two dimensional array might be declared as:

```
int vals[2][4];
```

This gives us an array with 2 rows and 4 columns, arranged as follows:

```
[0][0]    [0][1]    [0][2]    [0][3]
[1][0]    [1][1]    [1][2]    [1][3]
```

As we saw above, a one dimensional array can be used to store a string. It follows then that a two dimensional array can be used to store a set of strings. Consider the declaration:

```
char strs[10][40];
```

This declares *strs* as an array which can contain 10 strings, each of up to 40 characters in length. (A reminder: only 39 of those characters can actually store useful information; the remaining character is needed for the terminating '\0'.) *strs*[0] is the first string, *strs*[1][5] is the sixth character of the second string, and so on. Example 2 shows how this can be used in practice.

That's all for now. Next time, we'll look at structures, and arrays of structures. If there are any queries or comments on this article, please send them to me c/o CUGI and I'll do my best to answer them.

```
/******************************************
 *                                        *
 * Ex. 2                                  *
 *                                        *
 * Prompts user to type in 10 names and   *
 * then displays them in reverse order.   *
 *                                        *
 ******************************************/

#include <stdio.h>

void main()
{
    char names[10][50];    /* 10 strings, each of length 50 */
    int i;

    for (i = 0; i < 10; i++) {
        printf("Enter name [%d] : ", i);
        scanf("%s", names[i]);
    }

    for ( i = 9; i >= 0; i--)
        printf("You entered %s\n", names[i]);
}
```

Example 2: Arrays of strings

Dungeon Master

by Rocco Matassa

Role playing is a personal and socially interactive pastime, highly so. Tempers can flare and things said in the heat of battle which would ordinarily never be voiced. It is an activity that would be very hard to transfer to computer, a fact borne out by the limited success in producing a good role playing game (RPG) so far, despite many attempts. *Bard's Tale, Bloodwych, Buck Rodgers, Captive, Champions of Krynn, Dungeon Master, Corporation, Roadwar Europa* and *Ultima* are just a few of the many games of this genre that are available.

This list can be divided roughly into dungeon bashes, adventures, strategy, and maze solving. I have been very disappointed with all of the efforts so far. It is possible that I am being a little severe in passing universal judgement as most of these titles do have saving graces. The easiest aspect of an RPG to transfer to computer is the battle section, good old fashioned hack and slay, and the best of them all in this respect is one of the oldest. Yes, *Dungeon Master*, written back in 1987. This is a review of that great bash.

When you first load Dungeon Master (henceforth known as DM) you are standing in front of a gate. Two buttons on the wall are marked *Enter* and *Resume.* Select *Enter* with the mouse (yes, it's totally mouse driven). The gate slides up with accompanying sound effects of grating stone and rattling chains, brilliant.

Your screen is divided into a large window which is your view of the world, four windows along the top of the screen (one for each of your characters) and two windows on the right, one for spell casting and one for movement. Let us examine each of these in turn.

Each character window shows your name, the contents of your left and right hand, your weapons, and vital statistics. Keep an eye on your life force, your stamina and your magic power. Clicking on these windows produces a detail screen of your character, showing what your character is wearing, the contents of your backpack and any items in belt pouches, and most importantly your health and progress so far.

The magic window allows you to mix spells and cast them. You will find scrolls with information about spell creation on your travels, and here is where you get a chance to use them. The movement window is self explanatory. Clicking the arrow icons with the mouse causes your characters to move around within their world. Their world (the big window) is where you see your surroundings, various items, doors, pits, traps, treasures, and of course the dungeon inhabitants. Shall we enter and have a look around?

Your first job is of course to form a party, either from the choices supplied or by creating your own characters. You start off with almost nothing; one or two minor weapons, no potions, no armour, a few torches, and a little food but no water skins. Having collected what little is available, it's time to descend into the dungeon. Standing at the top of the first flight of stairs is the obvious place to save your position, a habit which you must get into on a regular basis.

The first thing that strikes you is how good the graphics are. The walls look real, along with the small puddles on the ground, slimy green patches, wooden looking doors and small drinking fountains. It doesn't stop there either; all the many varied items, be they weapons, armour, flasks, chests, food or whatever, are well drawn and anything that can have a sound effect does. This all adds up to a very atmospheric game. The weakest point is the creatures. Though well drawn, they have only two frames of animation; hence, they appear jerky, but I warn you, none the less frightening.

Your first combat will be with a mummy, an easy opponent later on, but for now, damn deadly! Dispatching him brings great reward; no, not gold or jewels, but a sword — much more useful. You first combat will not rely on magic as you have no offensive spells yet. They lie further into the dungeon, and the first spell you cast is bound to disappoint, as spells only work after you have practised them a little. Even with great experience, they can still fail in the heat of battle. What will hurt you most at this stage is having the ability to produce healing potions, but being unable to do so because you don't have a flask to make them in. This is a problem, because you'll quickly find they're rather vital.

The game is very well thought out. The difficulty level is so well set that the game remains a challenge all the way to level fourteen. It is hard to describe the feeling you get when ten levels down you run into a creature you haven't met before, you only have time for one shot at it, and you have to guess what it might be vulnerable to. The learning curve is quite steep. You won't be really comfortable with it until about the third or fourth level, but somewhere along the way it becomes very addictive, and you find yourself at three in the morning saying, "Yea, you ba****d, that'll teach you to mess with Muskels the invincible."

Dungeon Master can be bought mail order from the UK for around Stg £11 and is highly recommended. Overall, I rate it 92/100.

Discount Corner

by Geoffrey J. Reeves

There isn't too much to report since the last issue. CUGI can obtain many items at discounted prices, or failing that can point you in a good direction. Associate Members can avail of these offers too.

Disks
Our order of 2,000 disks has long since gone. Our new order of 1,000 was to arrive in two bundles of 500. The first bundle sold out at the meeting they first became available, and the second buundle has just arrived. By the way, the 5¼″ variety are also sold out at the moment — what are you lot doing with disks? Anyway, here are the current prices:

Size	Cost each	Cost per 10
3½″	£0.50	£5.00 (plus 1 free)
5¼″	£0.20?	£2.00?

Disks come with labels (and protective covers for the 5¼″ disks). Buying in bulk isn't a problem at the moment — we have no bulk! Needless to say, the rolls of labels have since run out. 10,000 more of those have just arrived; there are a few thousand still left, but a 10% rise in the cost means that our price to you must rise to £8.50 each.

Books
I told you about MicroMail in Cork last time and since then I have heard of many stories such as:

> "I ordered books at 4.30 pm and they had arrived (in work) by 8.30 the following morning!"

As one member put it, "They're an Irish company doing an excellent job — they should be supported." I agree. You can ring MicroMail on 021-317686.

Hardware
RAM chips suitable for the A590 Hard Drive, A2091 Controller, many RAM boards and upgrading to 1 Mb of chip RAM (newer A500's only) can still be got for £22 per ½ Mb (4 chips).

Virgo Developments have an interesting 1½ Mb board for the A500 — I reckon CUGI can get it to you for about £70–75. In fairness, I have had some problems populating an empty board beyond ½ Mb with the above chips. A recent call brought an explanation. Virgo populate the boards with chips needing 300 milliwatts (at least, I think they said milliwatts) while those we supply need 350. The difference was more than the board could cope with.

Apparently, Virgo had other similar reports and a redesign is on the way. The new board is to take 1.8 Mb and I await my replacement board with interest. If the price can be kept down, it seems like a good deal. I'll keep you posted.

If you want to go ahead and order on your own, mention CUGI but don't buy a partly populated board unless it's one of the new ones. Remember that any board with over ½ Mb on it will require you to open your A500 and mess about with the Gary chip. Cheerio warranty and, if you don't know what you're doing, cheerio the Gary chip. One member paid £25 to replace his Gary chip. Wasn't he silly?

Talking of expansion, there appear to be some members who don't have an extra disk drive! How can this be, I ask myself? Do they like lots of disk swapping? For £50, they could make their system a lot more comfortable. One point, though — we can't get these 'off the shelf'. I've persuaded the Treasurer to keep a small stock, so I'm ordering some now.

Having recently bought a soldering iron and stand of our own, we are better able to perform simple repairs at meetings. We still have some cable and sockets available for making extended telephone leads. Also, if you do leave us with a computer to get fixed, help us and our repair man by writing down as many details as you can about how the fault manifested or manifests itself. "It doesn't work" is a very good summary but ...

Finally, a reminder that CUGI is here to help *you*. Most of our discounts are available to us only through the club. If you know of any business that might like to help us, we'd be delighted to talk to them. We don't advertise the discounts because they're not part of why the club exists. They're just a bonus to our members.

CD-ROM, CD-I and CDTV

by Brian Ward

The definition of a compact disk is "an injection moulded aluminised disk, 12 cm in diameter, which stores high-density digital data in microscopic pits that a laser can read." We all know that it was pioneered by Philips, originally just to store high-fidelity music. However, the aluminised disk is now being put to much greater use than was ever dreamed of back then. The official storage capacity of the CD is 600 Mb (72 minutes of hi-fi sound) but there are already ordinary CD's available which play in excess of 78 minutes. A CD can also store 150,000 pages of text or 5,000 frames of video-quality pictures, which is tolerable.

CD-ROM

The definition of this is "a CD intended to store general purpose digital data for personal computers." A typical CD-ROM can store 556 Mb of information, which isn't too bad. However, a CD-ROM can only transfer data at a rate of about 150K a second, which is a lot faster than a floppy drive but slower than most modern hard drives. For this reason, it is not wise to use a CD-ROM based computer as a file server for a network.

In addition, the average seek time of a CD-ROM can be anywhere from 400 ms to 1 second. The reason for the slowness of seek time is the way the CD-ROM actually finds where it wants to go. To read data from a sector, the head moves only to an approximate location and then follows the data which is stored in a spiral until it finds the appropriate sector. If it needs to find that sector again, it has to jump back onto the spiral and wait until the sector comes around once more. Also, because the speed on the outer radius is less than half the speed at the centre (200 rpm vs. 530 rpm) reading the outer spirals takes longer than reading the inner spirals. Added to this is the settling time of the head which is between 60 and 150 ms. In spite of all this though, it would be really nice to have one beside me at work or play.

CD-I

CD-I stands for Compact Disk-Interactive. It is defined as "a self contained multimedia system that allows simultaneous interactive presentation of video, audio, text and data." If that definition has left you saying "Wha?" let me give you a scenario. You come home tired and weary, so you take out your *Atlas of the World* disc. You select Africa and get a full satellite photo of the great continent. You decide you want to tour the Pyramids, so you click on Egypt, and there they are in their glory with all the sounds to go with them.

You see a plaque on the wall so you click on it and the text appears. You decide to investigate a more leisurely activity so you return to the map and click on the great river. Suddenly you're on a cruise down the Nile, with the river splashing and all the other sounds of the river in full CD quality sound. You click on one of the animals in the picture and up on the screen comes its proper Latin name, where it can be found, etc.

CD-I is certainly a medium that when it's released will be the thing of the future. [*If it was released, wouldn't it be the thing of the present? – Ed*] The sky is the limit as far as CD-I is concerned. Imagine teach youself CD's by which you can save a fortune because the teacher is actually in the room with you. The most important point is that you have quality video and sound which you can interact with.

CDTV

CDTV stands for Commodore Dynamic Total Vision, and marks Commodore's first venture into the CD-I market. At least initially, CDTV will not be directly compatible with CD-I, but its aims are very similar. It is based on existing Amiga technology, which has the advantage that there are already a large number of developers familiar with the system. This means that there should be no shortage of software for CDTV.

On the other hand, CD-I has a better hardware specification, with higher quality graphics. Which technology will triumph in the market place is anyone's guess. The CDTV is due to be launched here at the end of April (it's already on sale in America) while CD-I won't be available until September at the earliest. However, CD-I has quite a few big names like Sony and Philips backing it.

Like the CD-ROM, the CDTV has some major drawbacks when it comes to data transfer. What governs the CD-ROM is the ISO-9660 standard which limits data transfer to a max of 150k a second. When you're trying to animate something at 10 frames a second, this is not much use. Ah, you say, why not compress the data? Even with 90% compression though, you still have the problem of decompression time.

The ultimate goal is what is known as *Full Motion Video* which is currently available on a PC using Intel's DVI chipset. To use this, you need to be in the Industrial Light & Magic league, as it costs several mortgages and still isn't quite broadcast standard. Who knows what the next few years will bring though? Meanwhile, just to whet your appetite, here's a list of some of the titles that have been announced to date for CDTV.

Home Reference

The Guiness CDTV Disc of Records	*Guiness*
King James Bible	*Animated Pixels*
World Vista Atlas	*Applied Optical Media*
American Heritage Encyclopedia Dictionary	*Xiphias*
Dr. Wellman, Family Medical Advisor	*Digita*
Grolier's Electronic Encyclopedia	*Xiphias*
Time Table of Science & Innovation	*Xiphias*
Time Table of Business & Politics	*Xiphias*
Illustrated Works of Shakespeare	*Animated Pixels*
Japan World	*TopClass Tech*
Advanced Military Systems	*Dominion*

Children's Classics

Cinderella	*Discis*
Tale of Peter Rabbit	*Discis*
Scary Poems for Rotten Kids	*Discis*

Children's Stories

A Long Hard Day at the Ranch	*Discis*
Moving Gives Me a Stomach Ache	*Discis*
The Paper Bag Princess	*Discis*

Children's Fun

Animated Coloring Book	*Gold Disk*
All Dogs Go to Heaven	*Merit Software*
Snoopy	*The Edge*

Leisure

GardenFax – Garden Plants	*Intersearch*
GardenFax – House Plants	*Intersearch*
New Basics Electronic Cookbook	*Xiphias*
Music Maker	*Music Sales*
Composer Quest	*Dr. T*

Education

Mickey's 1, 2, 3's	*Walt Disney Software*
North Polar Expedition	*Virgin Mastertronic*
Fun School	*Mandarin*
A Bun for Barney	*Multimedia*
Barney Bear Goes to School	*Free Spirit*
McGee	*Lawrence Productions*
Our House	*Context*
Hallo Freunde! – German for Beginners	*Illiad*

Thinking Games

Sherlock Holmes, Consulting Detective	*Icon Simulations*
Battle Chess	*Interplay*
Airwave Adventure	*Interplay*
Defender of the Crown	*Cinemaware*
Classic Board Games	*Merit Software*
Many Roads to Murder	*Vent*
Murder Anyone?	*Vent*
Dominion	*Dominion*

Adventure and Arcade Games

Indiana Jones	*LucasFilm*
The Secret of Monkey Island	*LucasFilm*
Loom	*LucasFilm*
Shadow of the Beast	*Psygnosis*
Thexder	*Sierra On-Line*
Excalibur	*Virgin Mastertronic*
Space Quest III	*Sierra On-Line*
Pacmania	*Domark*
Future Wars	*Interplay*
Xenon II	*Mirrorsoft*

Simulation Games

SimCity	*Maxis*
Falcon	*Spectrum HoloByte*
Jack Nicklaus at Muirfield Village	*Accolade*
TV Sports Football	*Cinemaware*

A Layman's Introduction to Usenet

by Thomas Rolfs

This article is meant as an explanation of and introduction to Usenet and the newly formed Dublin Based Usenet Group (DBUG).

DBUG was set up to provide its membership with access to Usenet electronic mail and news. In keeping with the spirit of Usenet, DBUG is a non-profit making organization run by a democratically elected community of volunteers. The constitution and aims of the group are readily available on request in both electronic and hard copy formats. Information about who to contact, as well the membership fee and what it buys you, is given at the end of this article.

As just stated, the primary purpose of DBUG is to provide its members with access to Usenet. But, what is Usenet?

Usenet

Those who have had no exposure to this seeming enigma will find any description difficult to assimilate. Few Usenet users themselves know what Usenet is or isn't, and most don't care either way. Of course, these users are either college students or professors whose institutions provide Usenet access free of charge and thus they tend to take it for granted. To a large extent, these institutions are the stuffing that makes up Usenet. Confused? Read on.

Usenet is, in a nutshell, a truly global interconnected mass of computer networks. Unlike most networks, Usenet evolved in a near Darwinian manner. There was no conscious form or reason for its creation and subsequent development, no directives from any network gods. It just grew. It is probably the closest thing we have to a working anarchy. How long it will continue to work is not so clear.

What basically happened was that individuals, with the backing or ignorance of the institutions that employed them, went about providing ways for users of their networks to exchange mail and news with those of other networks. Why? Heck, just for the fun of it of course.

The users, however, not only thought it was fun but found it an invaluable source of information. People found that they had a lot to talk about. Problems (usually the technical sort) could be shared and solutions found. When you posted a problem or query on a subject, you had the collective minds of hundreds of thousands of other people at your finger tips. As

Confucius did or didn't say, "Many hands make light work." And so it was, or rather, is.

The spin off was that institutions (colleges and large corporations) encouraged and supported Usenet. They didn't mind forking out for the phone bills and providing the disk space required for the growing message base, as they found the exchange of information beneficial. Their employees were better informed with it around that without. In fact, not being connected to Usenet could be considered a definite disadvantage.

It all started back in the latter part of 1979. Unix[1] V7 had just been released with UUCP (Unix to Unix Copy Program; UUCP allows files to be exchanged between two remote Unix systems). Two Duke University graduate students, Tom Truscott and Jim Ellis, had the idea of connecting systems together to exchange information between each other. Steve Bellovin, a graduate at the University of North Carolina, wrote the first Usenet software (written using shell scripts, Unix system batch files). The first two sites were *unc* and *duke.*

The network of networks has grown considerably since then. The software has advanced greatly and even standards have developed. However, the global network is still relatively young and more importantly, still an anarchy. It works because individuals make the effort to maintain their links (much like Fidonet sysops).

The numbers using the net are rising at an alarming rate, and it remains to be seen if Usenet can keep on growing and still operate the way it does. Pretty soon, maintaining links will require full time supervision and it's not too clear who's going to do it. (Then again, the hardware and software is progressing in leaps and bounds as well.) All the same, Usenet has too much inertia to stop now. The success of Usenet has ensured its future, whatever its form.

Mail and News

So far, I have only described Usenet in generic terms: interconnecting networks; exchange of information; benevolent anarchists, and so on. But what does Usenet look like to the end user? How do you exchange mail? And what is this 'news' thing exactly?

There are two ways to exchange information on the net. One is private, generally one to one correspondence via electronic mail. The other is by the public news system. First we look at electronic mail, as it is the simpler of the two.

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[1] Unix is a trademark of AT&T.

Electronic Mail

Electronic mail enables you send ascii text files from your host computer or system account to another individual's computer or system account. All you need to know is the e-mail address of the recipient. This is made up of a user name and site address. It matters not where in the world the person is situated; as long as his or her site is on the Usenet mailing maps, or you have an explicit path to the site, your mail will get through.

For example, if you wanted to send me some mail, you would use the address `trolfs@helior.dbug.hobby.ie`. There are a variety of address formats, but normally you don't have to mess around with these. All you do need to know is what your own address is and to make sure you let other people know what it is.

Most mailers (this is the software that lets you mail to the net) will provide a facility whereby a signature file of your own making is automatically appended to any mail you send out. This signature should contain your e-mail address. Of course, when you reply to mail the mailer will usually work out the return address for you automatically. Nevertheless, sometimes it gets it wrong and you have to explicitly supply the correct address.

Mailing Lists

You can also send mail to multiple recipients using lists of names and addresses. This, not surprisingly, is known as a mailing list. Mailing lists are useful for many reasons, the main one being the ability for special interest groups to hold discussions and commentaries in a closed and semi-confidential manner, i.e. conference by mail.

To join in the discussions, you just have to get your name on the list. Remember, nothing on the net is confidential. Any postmaster (the person who coordinates mail on a site) can read your mail if he or she wishes to. So, if you form a mailing list for 'Subversive Militants Against Broccoli', bent on eradicating broccoli from the planet, don't be too surprised when your plans for releasing an anti-broccoli virus get found out.

News

Mailing lists are good for small closed discussion groups. 'News', on the other hand, is for larger, broader ranging interest groups that are open for all on the net to participate in. News is also the most visible element of Usenet and the forum where decisions and policy are, literally, battled out and voted on. When you join the Usenet community, you become part of a true honest-to-goodness working democracy. And you didn't think there was such a thing, eh? Shame on you.

First though, let's look at how news works. Every site (computer system that is part of the network) keeps a database of articles that have been written by individuals from around the net. These articles are called postings. All the postings are filed into different sections called ***newsgroups.*** Each newsgroup name identifies its topic categorises the type of postings found within it. The newsgroup name has the following format:

`<domain>.<sub-domain>.<sub-sub-domain>...` and so on.

For example, all the computer related newsgroups start with:

comp.*

If you are looking for the Commodore Amiga newsgroups (yes there are many of them), they all begin with:

comp.sys.amiga.*

This hierarchical system makes it easy for people reading news to track down groups of interest quickly.

To read postings, you use a piece of software called a news reader. How your news reader works depends on your host site. Most, if not all, Unix sites have the 'rn' and 'nn' news readers installed..

These news readers will let you read and post articles to the net at your convenience. They provide nice features to make reading news easier and less time consuming. After all, there are hundreds of different newsgroups containing many messages and it can take time to sift through them all. The better news readers, such as 'nn', enable you to distinguish at a glance what is of interest to you and what isn't.

The news reader also lets you post articles to the net. Your posting will first be stored in your host news database and anyone else reading news on your site will immediately be able to read your article. Eventually, in a few days, your posting will have also propagated to all news sites on the net. Hundreds of thousands of people can read your posting. If need be, some may reply to your posting via mail, or post a follow up article. You in turn can continue the discussion via postings or mail.

Some Perspective

If you have used Fidonet at all, news will feel familiar. However, the sheer volume and breath of traffic may leave you somewhat shaken, if not slightly

```
From: reid@decwrl.dec.com (Brian Reid)
Subject: USENET READERSHIP SUMMARY REPORT FOR MAR 91
Date: 3 Apr 91 16:08:45 GMT
Organization: DEC Western Research Laboratory

OVERALL SUMMARY:
                              This           Estimated
                             Sample        for entire net
Sites:                        727              37000
Fraction reporting:           1.96%             100%
Users with accounts:        126656           6446000
Netreaders:                  28010           1425000

Average readers per site:                         39
Percent of users who are netreaders:           22.12%
Average traffic per day (megabytes):          17.547
Average traffic per day (messages):             7441
Traffic measurement interval:     last            28 days
Readership measurement interval: last             75 days
Sites used to measure propagation:               727
```

Table 1: Usenet Statistics for March 91

stirred. Here then are some stats from the monthly news.lists postings that might give you some idea of the size of Usenet. Table 1 shows an extract from the *Usenet Readership Summary Report for March 91* and summarises the survey findings for March of this year. Table 2 is taken from the *Usenet Readership Report for March 91.* The original posting gives a detailed summary of the activity in over 700 groups, but I've edited it to show only a cross-section.

As you can see, news is big. There are roughly one and a half million readers, from a potential base of over six million net users. Of course, you don't have to read all of the newsgroups. You need only subscribe to the ones that interest you.

Posting Articles to the Net

If you do post to the net you should take into consideration that your article will be duplicated on to an awful lot of sites (about 37,000 of them). Collectively, across all sites, the article will be consuming quite a bit of disk space. It is important then that you take care not to post anything

```
From: reid@decwrl.DEC.COM (Brian Reid)
Subject: USENET Readership report for Mar 91
Date: 3 Apr 91 16:09:37 GMT
Organization: DEC Western Research Laboratory

        +-- Estimated total number of people who read the group, worldwide.
        |     +-- Actual number of readers in sampled population
        |     |     +-- Propagation: how many sites receive this group at all
        |     |     |      +-- Recent traffic (messages per month)
        |     |     |      |      +-- Recent traffic (kilobytes per month)
        |     |     |      |      |      +-- Crossposting percentage
        |     |     |      |      |      |    +-- Cost ratio: US$/month/reader
        |     |     |      |      |      |    |      +-- Share: % of newsrders
        |     |     |      |      |      |    |      |   who read this group.
        V     V     V      V      V      V    V      V
   1 160000  3468   74%  2053  5539.7     6%  0.05  12.4%  alt.sex
   2 150000  3300   89%    97   286.1     0%  0.00  11.8%  rec.humor.funny
  11  94000  2056   92%   996  1765.6     9%  0.03   7.3%  comp.lang.c
  39  64000  1391   88%  2638  5731.3     3%  0.14   5.0%  rec.arts.startrek
  50  59000  1287   87%  1795  3159.9     6%  0.09   4.6%  rec.arts.sf-lovers
  56  56000  1233   86%    11    48.5     9%  0.00   4.4%  rec.arts.movies.reviews
  58  56000  1229   90%     8   215.6     0%  0.01   4.4%  comp.sources.games
  62  54000  1176   85%   203   352.3    23%  0.01   4.2%  comp.unix.programmer
  74  51000  1120   87%  1346  2358.8     8%  0.07   4.0%  rec.arts.tv
  75  51000  1118   89%   830  1245.1     6%  0.04   4.0%  comp.sys.mac.programmer
 105  45000   991   57%  1178  2681.3    25%  0.06   3.5%  alt.desert-storm
 131  42000   913   80%    73    99.3    23%  0.00   3.3%  comp.sys.amiga
 143  40000   879   85%   917  1369.3     7%  0.05   3.1%  comp.sys.amiga.hardware
 149  39000   858   88%    48  2133.0     0%  0.09   3.1%  comp.sources.amiga
 160  38000   828   87%    52  2690.9     0%  0.11   3.0%  comp.binaries.amiga
 164  38000   825   72%   694  1288.4    17%  0.04   2.9%  alt.romance
 175  36000   794   89%   308   442.2     9%  0.02   2.8%  comp.lang.pascal
 179  35000   773   86%  1507  4695.6     4%  0.21   2.8%  rec.games.frp
 218  31000   682   67%   770  1042.4     5%  0.04   2.4%  alt.tv.twin-peaks
 219  31000   679   72%   821  1276.4    13%  0.05   2.4%  comp.sys.amiga.misc
 244  29000   640   85%   187   432.4     4%  0.02   2.3%  rec.games.programmer
 253  29000   626   83%   679   971.7     3%  0.05   2.2%  comp.sys.amiga.games
 391  20000   447   64%   452   586.0     1%  0.03   1.6%  alt.fan.monty-python
 393  20000   444   85%   249   352.0     0%  0.03   1.6%  rec.gardens
 395  20000   443   67%   572  1151.6     3%  0.07   1.6%  alt.pagan
 403  20000   431   86%    23   315.1    14%  0.02   1.5%  sci.med.aids
 428  19000   410   88%   243   524.9     2%  0.04   1.5%  comp.lang.forth
 429  19000   410   76%   263   523.9     9%  0.04   1.5%  rec.arts.animation
 437  19000   404   71%   354   662.3     6%  0.05   1.4%  rec.games.mud
 653   9200   200   69%   118   275.4     3%  0.04   0.7%  rec.sport.football.college
```

Table 2: Newsgroup Statistics for March 91

that would be considered a waste of net bandwidth, i.e. plain rubbish or basically unimportant chatter (referred to as 'noise').

For example, posting a message saying something like, "It's good weather we're having here in Ireland. What's it like elsewhere, anybody?" will only get you flamed (angry mail, or postings, that are less than complimentary). Maybe if you were posting to rec.cloud.spotting you might be forgiven, but don't bet on it.

Each newsgroup has its own way of doing things. Some have very low traffic and welcome any postings that are relevant to the group. Others have high traffic and don't welcome neophyte postings at all. Indeed, these kinds of groups will usually have a monthly posting of Frequently Asked Questions And Answers, to minimise noise as much as possible.

If you are new to a group, it is best to follow discussions for a few weeks and get a feel for the group before you post anything. For example, if you are in the process of learning the C language and you think comp.lang.c might be a good place to ask a few questions, don't. This group is for people who KNOW the language, not those who don't. A book is a much better bet. Or a group for people who are learning new languages. If you can't find such a group, then you could try to create one yourself.

There are no laws (none set in stone at any rate) that say what you can or cannot post to news. However, as I've said, each group has its own unwritten do's and don'ts. There are people who will, politely at first, set you straight if you do make a *faux pas*. Anyone who really steps out of line will go down in a ball of flames.

In fact, before you post anything at all, you should familiarize yourself with a thing called *Netiquette* (a nice sounding word that). I'm not going to go into netiquette here as there already exists a very humorous and apt article that explains it quite adequately. It's entitled *Emily Postnews Answers Your Questions on Netiquette* and can be found in the newsgroup news.announce.newusers. (The word 'netiquette' is a merging of the two words 'net' and 'etiquette', and it should be fairly obvious what it means.)

The Virtual Democratic State?

Who regulates news? Who creates the newsgroups? The answer is the news readers themselves, i.e. you.

This aspect of Usenet is quite intriguing. It's a wonder there is any order at all. But amazingly there is. Well, maybe not so amazingly really. After all, the people reading news are concerned about the quality and usefulness of the service. Most of them are professionals who don't have that much time to spend to reading news and so are very sensitive to 'noise' and any form of disruptive behavior. Netiquette is important and in the main, people adhere to it.

Similarly, creation and deletion of newsgroups is also an area that concerns the net greatly. This aspect of news is regulated by simple voting. One account, one vote! If someone wants to create a new newsgroup, he or she must collect X number of votes from the net for the proposed group to be ratified. The rules for this democratic process *are* set in stone, though they can be altered by common consent (another vote). The nice thing about Usenet, unlike most other public facilities, is the fact that you have a say in what goes on. More power to the netfolk ... and all that.

That completes this short introduction to Usenet. Hopefully, it has given you a better understanding of Usenet and how it works (though there is no substitute for actual hands on experience). If you have any queries, please don't be shy; contact myself, or other DBUG members for that matter. Information on how to get in touch is given at the end of the article.

The Dublin Based Usenet Group

Up until recently, public access to Usenet was non-existent. Most of the net is made up of universities and big corporations. However, with the drop in modem prices and computer hardware in general, public access sites have sprung up all over the globe. No longer do you need to be a college student or corporate cog to access the net.

DBUG is the first (and currently only) Usenet public access facility in Ireland. The name of the group was the brainstorm of one Geoffrey Reeves back at the first ever meeting of the group on October 13, 1990. The name is significant in that we feel there will be, in the 'not too distant future' more Usenet groups like ours around Ireland. We hope so, at any rate.

So why should you join DBUG? What does Usenet have to offer you? Answer: more that you might think! Usenet is very much at the hub of the computer scene. Large corporations such as Commodore, Apple, IBM, Sun and many, many more are present on the net. A lot of news breaks there first. Rumours are rampant, but usually well founded. If you post a query about your computer, don't be too surprised if you get a reply from one of the people who designed the machine, such as Dave Haynie of Amiga fame. You'll also come across other celebrities such as Matt Dillon, Jack Radigan, Fred Fish and many others, all to be found on the net.

Apart from the wealth and scope of information and informed discussions, there is also a wealth of software for downloading. Indeed, Usenet is where a lot of new public domain and freeware packages first emerge. Sites exist with the entire contents of the Fred Fish collection, for example.

How much does this all cost? Unfortunately, Usenet access isn't free. Membership to DBUG stands at £50 a year. This might seem a lot when you consider that most BBS's in Dublin are free. However, no BBS to date gives you anything like the service offered by Usenet through DBUG. Most of the money goes to paying for a Usenet feed (from the Irish Unix Users Group). The rest is for the purchasing of necessary hardware and software needed to provide members with access to news and electronic mail. DBUG currently has a 4 Mb 386/25 Unix box, with 80 Mb HD and an eight port serial card, running SCO Xenix. What more could you ask for?

Does the fifty quid only give me read access to news or can I post to the net as well? The fifty quid gives you FULL READ AND WRITE access to Usenet as well as FULL electronic mail access.

Do I need any special hardware or software to access Usenet? All you need is a modem and some comms software such as *JR-Comm* or *Procomm*, the same as you need to access a BBS. If you don't have a modem or don't know what a BBS is, ask someone who does for advice.

Who are DBUG?

The current committee members are:

Chairman	Declan McArdle
Treasurer	Liam Murphy
Secretary	Martin Maguire
Network Manager	David Doyle

Where can I get more information? Just write to this address:

DBUG,
10 Ardagh Court,
Blackrock,
Co. Dublin.

or contact either Declan McArdle (phone 288 4195) or David Doyle (Sysop of TOPPSI BBS, phone 711047 or 711687). To join, just send a cheque for £50 made out to 'DBUG' to the address given above.

That about wraps it up for me. If you need to ask *me* any questions, I can be contacted as Thomas Rolfs on Infomatique and TOPPSI BBS's, or at most CUGI meetings.

Triple Amiga

by Geoffrey J. Reeves

Well, I thought, now that I have 20 Mb of hard disk space and 4½ Mb of RAM, I'm ready for anything. *Deluxe Paint III*, compiling C programs, TeXwork, real multi-tasking are now all easy — no more problems. Ah, those innocent days — when 20 Mb was really 20 Mb and 3 Mb of RAM was *"How much?!"*. Nine months later, my innocence shattered forever, I was saved by the introduction of the Amiga 1500. But would it really be 3 × A500?

Firstly, before you start thinking "20 Mb — what does he do with all that space?" To be fair, 20 Mb isn't *that* much. Your Amiga comes with two disks (*Workbench* and *Extras*), which together use over 1½ Mb. You will undoubtably add many small utilities such as *DMouse*, *PopUpMenu*, *Snap*, etc. and a virus killer or two such as *VirusX*.

Now add in *Deluxe Paint III* (another 2½ Mb). And this is nothing compared with *SAS/Lattice C* which comes on twice as many disks. You may not have the wide interests that I have but the speed difference of a hard drive over a floppy is quite a drug ... after a while, running anything from floppy seems snail-like by comparison. Eventually, demos have to be removed from your hard drive and then what? If your interests are more specialised, then 20 Mb may be enough.

I also had realised that the speed of a standard Amiga can be improved, as can memory expansion and many other things if you have an Amiga 2000 or 3000. I certainly would appreciate an accelerator card but the A500 would die under the strain, I reckoned. My problems were all solved by Commodore bringing out the A1500. You should have read many reviews and advertisements describing the 1500, but in case you didn't a brief summary follows. The A1500 package contains:

- Amiga 2000 with 1 Mb (chip) RAM, two floppies (A2000's usually only have one)
- 1084S monitor — stereo, new design
- Deluxe Paint III
- The Works! Platinum Edition — word processor, spreadsheet, database, terminal program, etc.
- Battle Chess

- Their Finest Hour — flight simulator
- Populus plus The Promised Lands
- Sim City plus The Terrain Editor
- Getting the Most Out of Your Amiga book
- A–Z of Computer Jargon book (pamphlet!)

I reckon the package is very well put together, particularly if you have wide interests or a family. Every aspect of serious work and general fun is covered and the software is good. *Deluxe Paint III* is the best of its type and *The Works!* is no slouch either. The games depend possibly on individual taste but *Battle Chess* is a joy to watch. The *AMIGA Format* book is also excellent (despite some confusion over the early machines produced by Commodore) while the Commodore-produced pamphlet is entertaining — who else would leave out the Amiga's main programming language (viz. C) or describe a megabyte incorrectly (1 Mb = 1024 Kb, not 1000 Kb)? In fairness, though, they did explain about using a capital K for the computer Kilo rather than the usual small k. They're learning.

All this arrived at about 1 o'clock on Christmas Eve last. Santa Claus does exist! Just sifting through the contents takes some time but opening the machine didn't. Warranty seal? Nah ... you feed them at the zoo, don't you? The seal is a bit silly, to say the least; after all, the main point of the A1500/A2000/A3000 is the expansion capabilities. You can't expand without getting inside ...

Anyway, having got inside, one sees the 5 Amiga slots, 4 PC slots (two of these are shared, so there are really only 7 slots maximum), a co-processor slot (a 68030 will do nicely, Santa) and out on its own, a video slot (for a genlock, Video Toaster or flicker fixer). There is a battery for the clock and the usual 68000 and the PAD set plus Gary, etc. Great, says you, but no hard drive, right? Yes ... right ... no hard drive. That hurt after a while. I really had got used to my hard drive. The solution was easy enough — Commodore produce a hard drive controller card (the A2091) which has a SCSI interface and space for 2 Mb of much needed RAM. The board is very similar to the one inside the A590 hard drive. Next step, a hard drive.

I'd set myself a target of a minimum of 80 Mb. Clearly I could have done with 40 Mb inside my A590 and with more and bigger programs coming on the market, I saw little point in just doubling up. Gathering forces, a few of us approached *Bytes 'n' Pieces* who gave us a good deal on 170 Mb units.

I had said *minimum* of 80 Mb and this suited me fine. After many weeks, my A1500 was kitted out with its hard drive. And it is very nice. I can now realistically keep up with innovations — I've only fitted one card (so far) and I can see good reasons for upgrading to a faster processor and possibly getting a flicker fixer and multisync monitor. I've seen the Workbench 2.0 display in interlace without flicker (see your friendly local A3000 owner) and it looks good. It would also mean that those CAD, art and DTP packages which use interlace mode wouldn't be such a strain on the eyes.

All this adds up financially — the original price in Ireland of the A1500 (inc. VAT) was £1,500. That has since come down but it is an expensive machine when compared to the A500. You pay for the expansion capability. If I'd been sure that my A500 and hard drive could have lasted for the next five years, I'd still have them. I needed the extras that the A1500 offers and the alternative — buying an A3000 — well, I believe in Santa ... but an A3000? ... very funny.

Null Modems Revealed

by Thomas Rolfs

There seems to be some confusion about how to wire up two Amigas via the serial port. I am referring, in particular, to the September issue of the newsletter where our esteemed Chairman, Geoff, talks about *Making the Right Connection* (page 38).

In this article, Geoff describes how to wire up an Amiga-to-Modem cable and an Amiga-to-Other-Computer cable. While the directions Geoff gave will work for most cases, there are some slight and some not so slight mistakes, or rather misunderstandings, about what should connect where.

Geoff gives clear instructions on how to wire up an RS-232C/V24 cable. However, his directions for wiring up an Amiga-to-Other-Computer cable are, unfortunately, somewhat amiss, though the assumptions he made were reasonable.

An Amiga-To-Other-Computer cable is in fact called a *Null Modem*. A null modem allows two computers to communicate directly via their RS-232C/V24 ports without using real modems. The simplest form of null modem is to just cross pin 2 (TXD) with pin 3 (RXD) and leave pin 7 (GND)

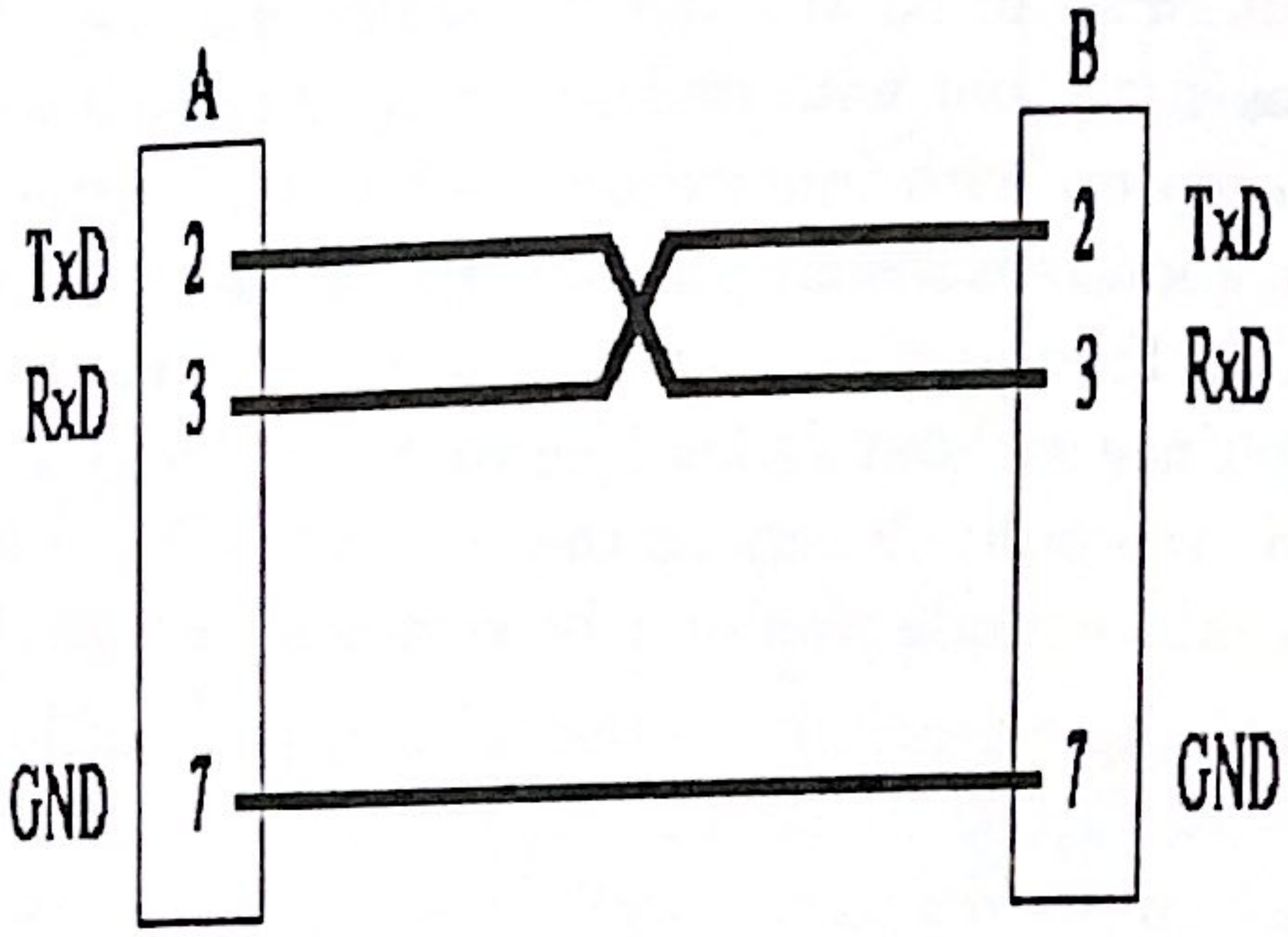

Figure 1: A simple null modem

as is (see Figure 1). Thus, data transmitted by one is directly received by the other.

While this simple null modem might work for most cases, we must remember that each computer, and in particular its comms software, still thinks that it is talking to a modem and not directly to another computer. So, for proper operation we must ensure that the functions of other significant RS-232C/V24 signals are handled correctly.

First let's deal with pins 4 and 5: RTS and CTS. These signals are used for hardware handshaking between computer and modem. Briefly, the computer asserts RTS when it has data to transmit. However, it can only transmit while CTS is asserted, and the modem only asserts CTS when it is ready to receive the data.

In the case of the null modem, we don't require handshaking as there is no modem to handshake with. Therefore, we always want CTS to be asserted when RTS is asserted. This is achieved by simply connecting pin 4 directly to pin 5 on the same connector (see Figure 2). (Note that Geoff had pins 4 and 5 *crossed* with their opposite pair, as with pins 2 and 3. This is not correct. That would only allow communication when *both* computers want to transmit simultaneously.)

Next, we must deal with pins 6, 20 and 22; that is, DSR, DTR and RI. DTR (Data Terminal Ready) is used to tell the modem that the computer is ready to use it. DSR (Data Set Ready) means that the modem is ready for use. RI (Ring Indicator) is a message from the modem to computer saying that a connection is being requested (i.e. someone is ringing us up).

How should our null modem handle these signals properly? If we are connecting two computers directly, then DTR not only means that the com-

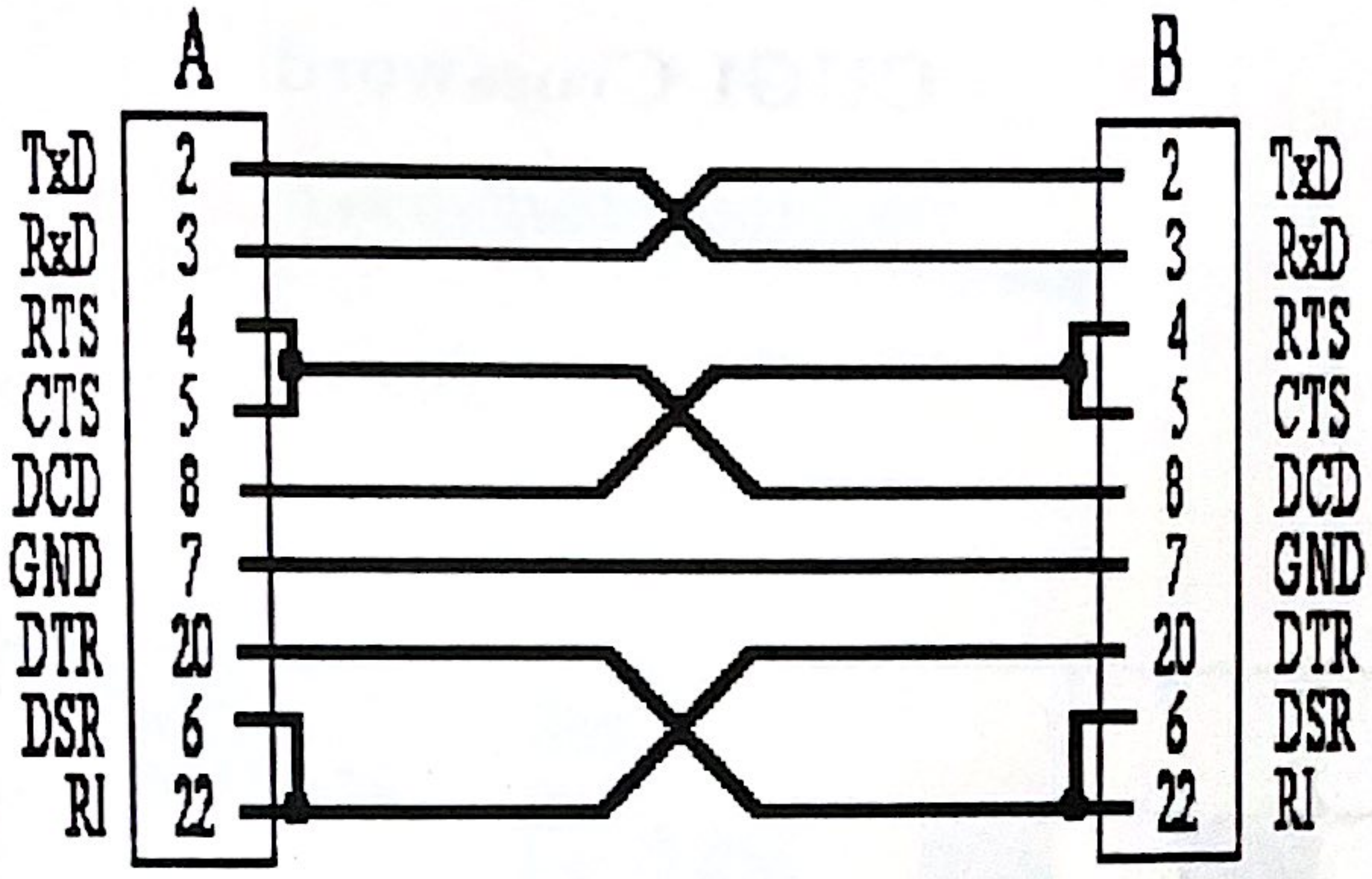

Figure 2: A complete null modem

puter wishes to use the modem, but it also wishes to connect up to the computer currently at the other end. We can assume this is so as there is only one possible computer we can connect to. Therefore, when DTR is asserted we want the computer at the other end to be informed of the request for connection. To do this we connect the DTR pin to the opposite RI pin (see Figure 2).

The DSR signal is redundant as there is no modem to wait on. However, in this situation we can think of DSR as meaning that 'the other computer is ready to receive and transmit,' so we connect the DTR pin to the other computer's DSR pin (check Figure 2 again).

Finally, the Data Carrier Detect signal, DCD. This signal indicates to the computer and its software that a connection currently exists. In Fred Halsal's *Data Communications, Computer Networks and OSI*, 2nd edition, it says to connect the other computer's CTS/RTS pair to DCD (as shown in Figure 2). However, I don't see why it is not better to connect DCD to the other computer's DTR pin. Maybe someone can enlighten me as to why this isn't the case.

Well that's how to wire up a full, asynchronous null modem. For most uses, a simple null modem (3 wires) will do the job. In the case of synchronous null modems, you must also cross the clock signals TXC and RXC.

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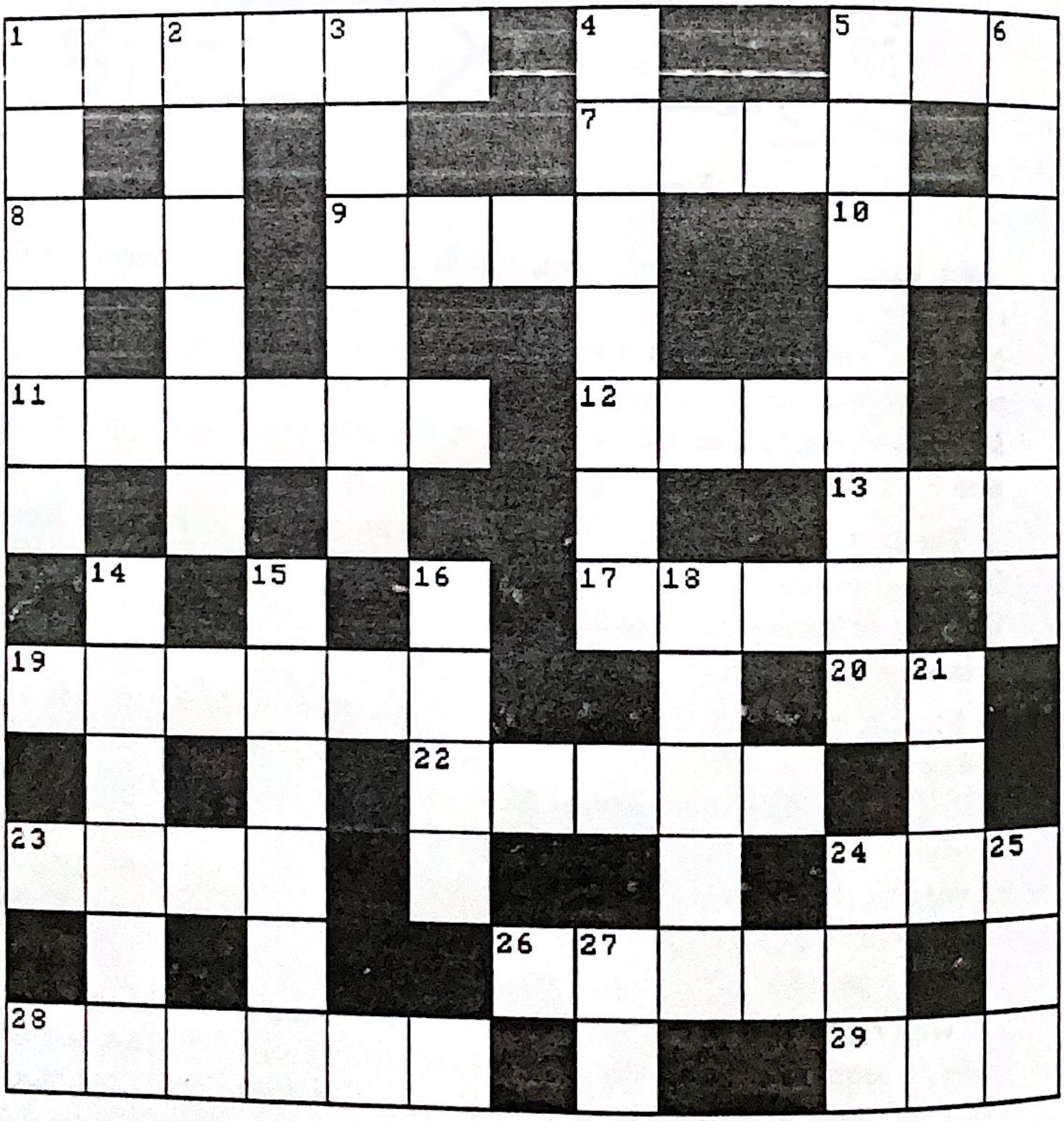
CUGI Crossword

by Aidan Hollinshead



Across

1. A falsehood that might make you stand up (6)
5. You sound as if you write with a limited Ameri[illegible]
7. How a cob might tell his wife to come in (4)
8. An original Greek letter (3)
9. Part of a cricket match which has ended (4).
10. Act about to get a pet (3)
11. Could a co-exit be unusual? (6)
12. The Spanish and French are female (4)
13. Initially what computes in a computer (3)
17. Could drinks sound annoying? (4)
19. Could a psychologist decrease in size? (6)
20. Initially longer than a single (2)
22. Small land masses found in a church (5)
23. Is the ursine naked? (4)
24. A fifty-fifty is everything (3)
26. Could the restart be about part of a tennis ma[illegible]
28. A smell or climb, or even both (6)
29. Could be head, cup or plant (3)

Down

1. Would the gander be in risk if he turned around [illegible]
2. Can you really trust a male cow? (6)
3. Might a cold sounding metal be satirical? (6)
4. Could a tort pen be some sort of sign? (7)
5. An addition hidden in a fold? (8)
6. What a tomato might do if it fell behind (7)
14. What you might say in a bar in Boston (6)
15. Sounds like to puncture a famous republican (6)
16. What keeps us all together (4)
18. Odds that aren't (5)
21. A friend back on your lap (3)
24. Consumed the number (3)
25. Mr. Napier's tree stump (3)
27. Literally not of the earth (2)